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ABRACADABRA: A Broadband and Resonant Search for Axion Dark Matter[1] REYCO HENNING, Univ of NC - Chapel Hill, ABRACADABRA COLLABORATION — ABRACADABRA is a proposed experiment to search for ultralight ($10^{-14} - 10^{-6}$ eV) axion dark matter. When ultralight axion dark matter encounters a static magnetic field, it sources an effective electric current that follows the magnetic field lines and oscillates at the axion Compton frequency. In the presence of axion dark matter, a toroidal magnet will act like an oscillating current ring, whose induced magnetic flux can be measured by an external pickup loop inductively coupled to a SQUID magnetometer. The readout circuit can be broadband or resonant. In this talk I will review the design and sensitivity of the experiment. I will also show preliminary results from a 10-cm prototype and present a program to probe the QCD axion at the GUT scale.

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